

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/539,864	03/31/00	SEKI	Y 0010-1098-0

MM91/0411

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT  
1755 JEFFERSON DAVIS HIGHWAY FOURTH FLOOR  
ARLINGTON VA 22202

EXAMINER

PATEL, I

ART UNIT	PAPER NUMBER
	2841

DATE MAILED: 04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

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<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/539,864	SEKI ET AL.
	Examiner	Art Unit
	Ishwar B Patel	2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 March 2000.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1 and 2 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

- 15) Notice of References Cited (PTO-892)
- 16) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) Notice of Informal Patent Application (PTO-152)
- 20) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Drawings***

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

***Specification***

2. The disclosure is objected to because of the following informalities:  
The phrase " and if a minute or five processing is performed in such a state" is confusing and not clear.  
Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinada et al. (hereafter referred to as Shinada, 6,121,553).

Regarding claim 1, Shinada discloses an insulating resin composition to be used to form insulating layer(s) of a multilayer printed wiring board, comprising two or more

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kinds of resin (an adhesive composition including a polyamide-imide resin and a thermosetting component preferably including an epoxy resin for insulating layer), but fail to disclose explicitly that the resins have different etching rate. However the polymide resin and the epoxy resins have different dry etching rate as disclosed by the applicant, page10, line 14-20. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the resin composition for insulating layers having different etch rate in order to have a circuit board with high wiring density and high connection reliability.

Regarding claim 2, Shinada discloses the multylayer circuit board having the insulating layer(s) resulting from the disclosed insulating resin composition but fail to disclose the surface roughness by the plasma treatment of 100-4,000 nm. However the plasma etching is known in the art and it is also known in the art to have rough surface for reliable electro plating on board. Further it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the circuit board of Shinada with insulating layer surface roughness degree by the plasma treatment of 100 - 4000 nm. in order to have the higher plating reliability.

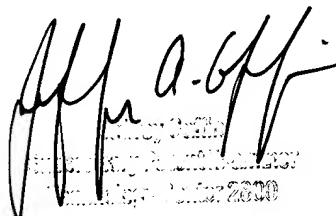
***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hosomi et al., Inoue et al., Nakamura et al., Saida et al. Sekimoto et al., Fujiwara et al. Nakamura et al., Uno et al., Inoue et al., Takahashi et al., Katagiri et al., Shimoto et al., disclose the resin composition similar to applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar B Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4 ) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308 3301. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

  
U.S. Patent and Trademark Office  
April 7, 2001

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April 7, 2001